Exhibit B

- **Problem Or Need Satisfied By The Invention**

What is the problem, and how has it been addressed previously? The reason for attacking the particular problem may be due to failures or defects of earlier proposed solutions known to you or reported in the literature or in patents. The description of the background of the problem should assist a person with no background in the specific field of the invention to become familiar with the subject of the discovery or invention. This information will assist the patent attorney in emphasizing the advance that you have made. Attach drawings if helpful.

1. **As a background investigation tool for use in selection of candidates for law enforcement, criminal justice and/or public safety positions**:

In the case of "high risk" employment positions (particularly in law enforcement, public safety, and criminal justice professions), personal history data forms the foundation for a comprehensive background investigation. The results of these investigations are, typically, used to evaluate the employment suitability of a given candidate. As such, the completion (by the applicant) of an instrument used to gather this history (typically called a "personal history questionnaire) is the first step of most pre employment background investigations.

The complex personal history information that defines the database of this background investigation must be organized, exhaustively investigated, and objectively evaluated. However, accurate, efficient and objective evaluation of background information can be difficult to accomplish because the data is lengthy, and the quality of available investigative resources is usually limited since applicant background investigations must, necessarily, receive lower organizational priority than urgent law enforcement investigations. Nonetheless, even when data is well organized, and adequate investigative resources (time, talent, and priority) are invested, it is still difficult to objectively compare and evaluate these findings.

2. **As an efficient and accurate method of deriving biodata values**:

Simply spoken, biodata are specific life events, derived from various personal history domains (e.g. employment/military, legal, substance use, etc.), which are then assigned numerical values. Scientific research has demonstrated that these values, considered in aggregate, are predictive of specific job dysfunctions in law enforcement officers (e.g. Sarchione, Cuttler, Muchinsky, and Nelson; 1998. Therefore, analyzing personal history data (by deriving biodata scores) can be an effective means of evaluating applicants for employment. However, derivation of this information in an accurate and efficient manner is a tedious and often cumbersome process.

There are several ways to develop biodata from personal history questionnaires. In the academic literature, the most common way is to derive a series of objective questions ("true/false", "yes/no", multiple choice, and/or range related questions), and assemble these items in a specific questionnaire which yield biodata scores (called "objective scoring"). In addition, some questionnaires are designed with "open ended" questions (e.g. "compared to your peers, how well did you do in school?") that are then scored by a reader (called

"subjective scoring"). However, both approaches can have serious shortcomings in an employment selection setting.

Accurate derivation of biodata from an "objectively scored" (true/false, yes/no, etc.) questionnaire is dependent upon the applicant's interpretation of a given question. However, in regard to negative life events, the applicants' "response set" often encourages her/him to "misinterpret" the meaning of a question. The term "response set" is a psychometric concept referring to the "attitude" with which an individual completes a test, questionnaire, or screening instrument. It is generally accepted that the "response set" adopted by an employment applicant is reflected in what is called a "positive bias" towards description of life events, particularly if these events are negative. Stated simply, it is expected that employment applicants will attempt to portray themselves in as positive a light as possible in order to be viewed favorably in the selection process.

For example, an employment applicant might indicate "no" to the question "have you ever been fired, terminated, or asked to leave a job under negative circumstance". However, upon interview he/she may state: " I simply thought it was best to leave after my cash register came up short and the boss held me responsible." In this case a biodata value for "job termination" should be calculated. However, based on the applicant's response to an "objective" questionnaire, it would not be scored. Because of these phenomena, many objectively scored biodata instruments are found to be inaccurate upon interview and/or background investigation and are considered to be reliable only upon confirmation by personal interview. Hence, the utility of such objectively scored PHQ's (personal history questionnaires), as an initial screener for large groups of applicants is limited.

Subjective scoring (open ended questions read by raters) is less obvious to the applicant (hence less susceptible to response set biases) and also has the advantage of allowing the evaluator (or rater), rather than the applicant, to interpret specific events and assign biodata scoring points. In addition, researchers have typically found high levels of inter rater reliability when biodata is derived in this fashion. Unfortunately, this is also a rather tedious and time-consuming task. The information needed to make the fine distinctions necessary for accurate assignment of biodata values is usually spread out among several pages (sometimes, several volumes) of personal history information, and occasionally important points are overlooked, rendering this approach less practical for large groups of applicants.

3. **As a direct (independent and non intrusive) predictor of specific job outcomes in law enforcement, criminal justice, and public safety applicants.**

In "prior art" biodata questionnaires have been constructed in a manner similar to psychological tests and, as such, have the same vulnerability to error. These questionnaires are typically designed by identifying psychological constructs (cognitive abilities, personality traits, attitudes and values, etc.) which are thought to be predictive of job performance (e.g. conscientiousness, decision making ability, interpersonal flexibility, empathy, etc.) in a "broad job classification" (e.g. supervisory, sales, etc.). Specific life history questions are then linked (usually by "subject matter experts") to these constructs. The resultant biodata values are then calculated in terms of scores on these constructs and an individual's suitability is described in terms of the degree to which his/her scores approximates those associated with good or bad job performance within that (broad) job classification.

Similar to psychological tests, the accuracy of these job performance predictions (based on construct scores derived from biodata) are dependent on the degree to which the various constructs are predictive of the outcome in question as well as the degree to which the job in question is similar to the job for which the "constructs" where identified. As such, the accuracy of "construct based" biodata questionnaires suffers from the same sources of error as psychological tests. In addition, the questionnaire itself must be redesigned each time the critical components of a job change.

Finally, psychological tests, as well as biodata questionnaires linked to psychological constructs have been criticized as intrusive in regard to personal privacy. Many of the specific test items contained in psychological tests have been challenged on the grounds of invasion of privacy. This can also be true when biodata questionnaires are administered separately from a background investigation.

I. What Is The Proposed Solution To The Problem, And Why Is It Better Than Prior Solutions?

Virtually every invention is an improvement over some existing product or method, and will have advantages in its manufacture or use that the prior product or method did not have. Describe how the new solution (the invention) to a particular problem differs either in structure or in method of operation from what has been done before. Identify competitive activity in the area. This Disclosure should contain each of these advantages, which will need to be incorporated into the patent application. Attach additional sheets if necessary.

Primary improvements associated with our approach include the following:

1. Use of a standardized life history questionnaire that develops biodata while facilitating background investigations.
2. Direct (and independent) linkage of biodata values to specific job outcomes (in law enforcement, criminal justice and public safety positions) rather than to constructs which are subsequently linked to job performance.
3. Automated data capture
4. Structured identification of negative indicators
5. Automated derivation of biodata values

1. Use of a standardized life history questionnaire

As noted in the previous section, most biodata questionnaires contain specific (life history based) questions that have been identified as predictive of performance. These are typically focused lists of objectively scored questions whose utility is, necessarily, limited to generation of biodata and resultant scores. The LESI BIMS, is a life history questionnaire that develops comprehensive biographical information that can be used for multiple purposes (background investigation tool and biodata derivation). In this way, it serves as a standardized life history assessment tool for law enforcement, public safety, and criminal justice professions. Use of the questionnaire accomplishes several purposes (background

facilitation and suitability assessment). Furthermore, the questionnaire defines a standardized data set that can be applied by multiple agencies employing applicants in similar job classifications.

2. **Direct (independent and non intrusive) linkage of biodata values to specific job outcomes (in law enforcement, criminal justice and public safety positions)**

Information, negative indicators, and biodata values derived from the LESI BIMS have been directly linked to specific negative job outcomes in law enforcement, public safety, and criminal justice applicants (failure to complete training, various disciplinary and performance problems after completing training). Resultant scores and values are directly linked to these outcomes rather than to constructs (traits, personality characteristics, values, cognitive abilities, etc.) identified as being associated with these outcomes. As such, the accuracy and predictive validity of the LESI BIMS is demonstrably greater than traditional instruments.

In the past, the most common way to predict these outcomes has been with psychological tests. Inasmuch as our published research has demonstrated that our biodata measures are statistically independent from psychological tests, our approach can be expected to be more accurate than traditional biodata instruments that are linked to psychological constructs.

In addition, the specific life history questions contained in the LESI BIMS questionnaire is, in fact, "part and parcel" of the background investigation process. In this regard, negative indicators are identified, and biodata is derived through analysis of this rather "straight forward" data and is not, inherently intrusive to privacy.

3. **Automated Data Capture**

PHQ data exists in several formats including names, addresses, dates, numbers (salary, incidents, etc.), and text (written explanations and clarifications). The LESI PHQ (also called BIMS; Background Information Management System) captures all this information and stores it in an electronic database (MS SQL Server). Once this data is placed in the database, it can be logically analyzed using arithmetic (for dates, earnings patterns, etc.), conditional logic (present/not present), descriptive endorsement (multiple choice, choose all that apply, etc.), and or simple page placement (for text descriptions) to generate a report.

The LESI PHQ consists of a large number of detailed questions designed to develop in depth information from which to derive investigative hypotheses and biodata values. The initial "paper and pencil" format (Beta P_1 8/15/99) was optically scanned; converting numerical and descriptive endorsement data to ASCII text (via optical mark recognition) and written data to "images clips" converted to *.tif and *.jpg formats. This data was stored in approximately 980 database fields which were selectively chosen for calculation and/or placement on the report. Our current electronic (Beta E_1) version (onlinePHQ.com 5/01/00) utilizes the advantages of on line presentation and, as such, we are now able to capture even more complex data. The current (Beta E_1) version of onlinePHQ.com stores information in over 3700 individual fields. Various "pages" of the form are displayed, as needed, based on specific applicant responses and detailed description of specific responses is elicited on a conditional basis (additional questions are not visible until the "stem" question is endorsed).

The capture and organization of this (voluminous) data into electronic format allows us to produce very detailed, well organized and accurate reports in a very short amount of time. In addition, since all the data (and the report) is in electronic format and can be easily accessed and, and reports customized to suit users (employing agencies).

To my knowledge, a similar PHQ form does not, as yet, exist for use in employment screening. I am aware of comprehensive social history questionnaires (NCS among others), used in medicine and psychiatry that are presented on line and use branching logic (questions asked depend on previous responses). They may even generate risk scores. However, these "risks" are for illness, suicide, etc and are not linked to job performance attributes. The forms are also not designed to compensate for positive response bias and are certainly not appropriate for use in pre employment settings. As noted above, there are also "weighted application blanks" used for initial screening for specific jobs (NCS/ London House) as well as "biodata rating forms" which are either multiple choice (and, hence inaccurate or limited to "gross" measures) or read/hand scored and, as such, of limited utility for large groups since quick and accurate scoring in a short period of time is critical for efficient selection processes.

4. **Structured identification of negative indicators:**

Through our research (which started in 1984) and our applicant database (which currently includes more than 30,000 applicant records representing more than 400 client agencies), we have identified a number of life history events, which are predictive of specific job dysfunction. We call these events/facts "negative indicators".

note: in this context, predictive means "increases risk and, as such, warrants close investigation". The existence of any specific negative indicator, while mathematically accretive to a biodata value, does not, unilaterally, predict job dysfunction. However, as noted in the previous section, biodata values at sufficient levels have been found to predict dysfunction at specified levels of confidence, i.e., **there is an important distinction between biodata values and negative indicators**.

Identification of these negative indicators often requires conditional logic (e.g. accepts job at less pay after stating reason for leaving previous job was "advancement", admits to smoking marijuana after date of first application to law enforcement agency, etc.). We have developed an extensive list of negative indicators, based on conditional decision rules that we have coded into LESI PHQ data analysis routines. Due to our ability to capture complex data (as described above) we are able to identify these indicators and call them to the attention of background investigators in an accurate (and exhaustive) manner. Furthermore, we believe the conditional logic that derives these negative indicators approaches (close to, not exactly) what has been described as an "expert system" (computer code that emulates the complex reasoning and inferential processes of expert investigators). The structure through which we do this can, to some extent, mitigate limitations of inexperienced and/or "time pressured" investigators (see question 1, page 1).

Once again, I am aware of no instruments that systematically identify, and then organize negative indicators for further investigation by background investigators. In fact, one of the common complaints of many investigator/supervisors is that they have difficulty maintaining consistency across investigators (i.e. investigators do not all pay attention to the same things and many overlook seemingly important negative indicators).

5. Automated derivation of biodata values

Biodata indices are calculated by assigning values to negative indicators (or clusters of negative indicators). As mentioned in earlier sections, this can be a very tedious task since the information required to make these determinations is usually spread out across an applicant's record. Once our conditional logic identifies negative indicators, calculation of resultant biodata values and indices becomes a relatively straightforward, linear process. These values can be used alone, as an initial screening tool or can be combined with other data (e.g. psychometrics as in our SRA).

There are a number of questionnaires that calculate risk scores and/or identify and differentiate "critical items" from "serious items", etc. (e.g. Johnson Roberts Personal History Questionnaire). These items can be taken as negative indicators, and investigators can be instructed to focus on them. However, the instrument relies on objective (yes/no true/false) responses and, as such, is susceptible to response bias and is often found to be inaccurate. Typically, the accuracy of admissions cannot be assumed until the applicant is personally interviewed. As such, although the instrument may have some use to background investigators, it has limited utility as an initial screening tool for large groups.

II. What Is The Best Way To Practice The Invention?

Set forth the best way known for carrying out the invention. What are the particular sizes, shapes or dimensions of a new product, if applicable? What specific composition, circuit or other components contribute to optimal performance? Identify successful tests of the invention. What products (list product numbers or SKUs) will contain or be produced by the invention? Operative examples of a new process, the best way of making a new product, and a complete set of drawings, in paper form and electronic form (*.vsd, .cdr, .dwf, .dxf,* or *.dwg* format, if available), of the invention should be included and/or attached.

As noted above, a key technical issue involved in the "practice" of this invention is data input. Personal history information is complex and exists in multiple formats. Once it is stored in a database, one can then write code to analyze it and prepare it for reporting. We have designed two input vehicles for the LESI PHQ; paper and pencil and electronic (www.onlinePHQ.com).

Both these input vehicles have several design features in common:

1. They derive data in multiple formats (numeric, alphanumeric, multiple choice, and text).

2. They both utilize conditional logic (identify presence or absence of data for decision rules; e.g. "indicates DUI but fails to include explanation")

3. Scoring algorithms, and logic are derived across items, and often across domains. In addition, the information necessary to derive negative indicators is spread across multiple questions, which are linked logically, but do not appear sequentially, to the applicant.

(e.g. "date you first applied to a law enforcement agency" on page 3; "when did you last smoke marijuana" on page 37 or "drug use" on pg 37 and "while in the military" on page 10)

The primary vehicle for data input is electronic. This is an html/xml application, which presents questions relevant to various life history domains (identifying info, education, employment, military, legal, substance use, etc.). The items are designed in "stems", i.e. more detailed, probing, questions become visible to the applicant only after the initial "stem" question is endorsed. In addition, the questionnaire is divided into sections, corresponding to each life history domain. Once an applicant submits a section, responses may not be viewed, recalled, or altered (sections may be reviewed prior to submission but not after). In this way, inconsistencies and other negative indicators may be identified.

The paper and pencil questionnaire is designed as a secondary input vehicle to be used only in cases where electronic access is impossible. Although this questionnaire is fundamentally

the same as the electronic questionnaire, the data it generates is somewhat less refined. As noted in a previous section, the questionnaire is optically scanned; converting numerical and descriptive endorsement data to ASCII text (via optical mark recognition) and written data to "images clips" converted to *.tif and *.jpg formats. These image clips appear on the report and their presence or absence is part of the conditional logic used to identify negative indicators. However, practical constraints (space and page volume) are such that less detailed information can be derived and scored (980 fields vs. 3700 for electronic) and, as, such, the complexity and subtlety of the negative indicators are diminished.

III. Are There Other Ways To Practice The Invention?

Usually it is possible to vary the operation, structure, composition, etc., of the invention without losing the advantages of the invention. What are the minimum amounts of components necessary to practice the invention, and with what other components can they be combined to create an alternative embodiment? Identify methods or techniques that others may employ to attempt to "design around" your invention, that you still would consider infringing upon the main idea or concept of your invention.

It is possible to design a personal history questionnaire using "nested" or "stem dependent" questions. It would also be possible to design a set of decision rules to define negative indicators. However, I feel that any system based on our decision rules that cannot be independently validated (i.e. based on a unique database, independent from ours) would be an infringement. In addition, although our published research demonstrates the predictive value, and statistical independence, of each domain (biodata and psychometrics) we have not published any method for combining the two domains or any experimental results derived from combining predictions from the two domains.

I envision some future enhancements of this system, as well. Some of this may (or may not) pre exist in other instruments or applications. These include:

1. Providing the capability for automated (electronic) links to searchable, on line public record databases based on information provided on our form. This information could then be included in our report. Confirmations and, more importantly, discrepancies could be identified (using text recognition) and incorporated in our logic

2. Generating addressed letters of inquiry (or maybe even e_mails) for confirmation of employment, education, references, etc.

3. Utilizing text recognition techniques to classify descriptive data input by applicants and, once again, incorporating these results into our decision rules.

IV. Who Contributed To The Invention, And When?

We must establish the dates of evolution of the invention, as well as the identity of the inventor(s). The patent attorney will make the ultimate recommendation regarding the persons that should be listed as inventors on the patent application. In order to make such a decision, please list all facts pertaining to development of and contributors to the invention.

It's hard to say when I first started thinking about this, but I first started investigating biodata around 1995 and was an advisor to Charles Sarchione when he worked on his doctoral dissertation (the foundation for our 1998 publication). Paul Muchinsky was another advisor on this project, but his input has been limited to academic issues regarding measurement and other biodata research design issues. These individuals had no part in the development of the PHQ form and, to my knowledge, are unaware of its existence.

I started investigating the feasibility of designing an automated PHQ in early 1999 (around March). At that time, I discussed optical scanning issues with Brian Donati of Wildon Research (release and confidentiality agreement on file). I also worked with NCS in design of the first "paper and pencil" form (confidentiality agreement, names of participants, etc. on file). In late 1999 I worked with David Hurd of Document Technologies, Inc (release and confidentiality agreement on file) to refine the paper and pencil format. In August 1999 Ty Seddon of Wildon Research did the lion's share of coding, SQL design, and systems layout for the initial paper and pencil beta. He is also the principal systems architect of the electronic (on line) version (release and confidentiality agreement on file). David Williams of Wildon Research may also have been involved from time to time. (release and confidentiality agreement on file).

Finally, Ellen Cuttler was intimately involved in all stages and facets of the development of this invention. She had particular input in regard to the design of the PHQ form in both paper and pencil and electronic formats. She also contributed creatively in theoretical terms. I believe she should hold joint title to any patent that emerges from these efforts.